

3.5 Third- and fourth-degree perineal tears

Context

This data item examines the rate of third- and fourth-degree perineal tears per 1,000 women giving birth vaginally based on their place of residence. Perineal tears are tears of the skin and other tissues (the perineum) that separate the vagina from the anus. They occur mainly during childbirth as the baby stretches the vagina.^{1,2}

Most women who give birth vaginally do not sustain any significant damage to their perineum or anus.³ Of all women who gave birth vaginally in Australia in 2014, one-quarter had an intact perineum after the birth, and about half had either a first-degree tear (skin-deep tear) or a second-degree tear (involving the perineal muscle).³ A small proportion (3%) of women had a third- or fourth-degree tear.³

A third-degree tear is an injury to the perineum involving the anal sphincter (muscle controlling the anus), and a fourth-degree tear involves the anal sphincter and the anal mucosa (the lining of the anus or rectum).^{1,2} These injuries, if not recognised and repaired at the time, can have serious long-term consequences for women's lives, including continued perineal pain, faecal incontinence, painful sexual intercourse, reduced quality of life and depression.² Accurate detection and appropriate repair of these tears is important to minimise the risk of infection, blood loss, pain and incontinence, as well as long-term complications.^{2,4} Repair surgery is effective in eliminating symptoms for about 60–80% of affected women one year after surgery, but some women have permanent incontinence despite appropriate treatment.^{2,5}

Australian rate

The Australian rate of third- and fourth-degree perineal tears is above the reported average for comparable countries in the Organisation for Economic Co-operation and Development (OECD).⁶ Differences in clinical practice and in reporting are likely to contribute to variation between countries.^{6,7} Rates are higher with instrument-assisted birth. For unassisted vaginal births, the Australian rate and OECD reported average were 2.4 and 1.6 per 100 births, respectively, in 2013.⁶ For instrument-assisted vaginal births, the Australian rate and OECD reported average were 7.3 and 6.0 per 100 births, respectively.⁶

Third- and fourth-degree perineal tears

Analysis of data from the National Perinatal Data Collection in 2013 found that Aboriginal and Torres Strait Islander women who gave birth vaginally were less likely to have a third- or fourth-degree perineal tear than non-Indigenous women (1.8% compared with 3.0%).⁸ Living in remote areas was associated with lower rates of third- and fourth-degree tears than living in major cities (2.1% in remote areas compared with 3.2% in major cities).⁸

There are limited published Australian data on the effect of socioeconomic disadvantage on rates of third- or fourth-degree perineal tear. Socioeconomic advantage was associated with higher rates of severe perineal tear in an analysis of first births in England during the period 2000–2012.⁹

Risk factors for third- or fourth-degree perineal tear

The risk in a first vaginal birth is approximately three times as high as the rate in subsequent vaginal births.^{10,11} The risk is approximately doubled in an instrument-assisted birth (forceps or vacuum extraction)¹¹, or if the baby's birth weight is 4 kg or more.^{10,11} Other risk factors include Asian ethnicity, large infant head circumference, prolonged second stage of labour, shoulder dystocia of the baby (shoulder stuck behind mother's pubic bone), having a previous severe perineal tear, and occipito-posterior position of the baby (back of baby's head against mother's spine).^{2,10–12} Having a male baby and gestational diabetes have also been identified as risk factors in some Australian studies.^{13,14}

Evidence is conflicting on whether an episiotomy increases or decreases the risk of third- or fourth-degree perineal tears during a vaginal birth.¹⁵ Episiotomy is a surgical cut made through the vaginal wall and perineum to provide more space for the baby to be delivered.¹ The effectiveness of the procedure in preventing severe perineal tears appears to depend on the type of cut and the indications for its use.¹⁶

Women aged 25–34 years appear to be more likely to have third- or fourth-degree perineal tears after vaginal birth compared with younger and older women, according to Australian data.^{16,17} The lower risk of severe perineal tears for women aged 35 years and over compared with women aged 25–34 years does not appear to be related to the proportion of first births.^{14,16} More caesarean sections in this age group may mean that those who give birth vaginally have fewer risk factors than younger women.

Trends since 2000

The reported incidence of severe perineal trauma has increased over the past two decades in Australia and in comparable countries.^{9,18–20} A study of births in New South Wales reported an increase in the overall rate of severe perineal trauma from 1.4% to 1.9% between 2000 and 2008.¹³ Rates increased three-fold in England between 2000 and 2012, from 1.8% to 5.9%.⁹

The trend towards increasing rates of third- and fourth-degree perineal tears does not necessarily indicate poor-quality care. Some of the rise may be due to better recognition and reporting.^{8,12} Other suggested explanations are increased rates of forceps-assisted births, and changes in episiotomy rates and practices.^{9,21} Changes to other practices during the second stage of labour may also contribute, such as the woman's position during birth, support of the perineum as the baby's head is delivered and the speed of delivery of the baby's head.^{16,18,19} Changes in risk factors, such as the rise of maternal age at first birth and maternal weight, may contribute⁹, but evidence is lacking to confirm this.^{16,18} The increased proportion of women of Asian ethnicity in Australia may be a contributor to the rate rise.¹⁶

About the data

Data are sourced from the Australian Institute of Health and Welfare National Perinatal Data Collection, and include births that occurred in hospitals, birth centres and the community (such as home births), for both public and private patients. Rates are described as the number of third- and fourth-degree perineal tears per 1,000 women who gave birth vaginally over the three-year period 2012–2014. Data include instrument-assisted births, non-instrument assisted births and episiotomies.

Data are aggregated over three years to provide sufficient numbers to support reporting at a local level. The number of third- and fourth-degree perineal tears and the number of women who gave birth vaginally over three years are used to provide an average rate. This is comparable to a rate based on data collected over one year.

The analysis and maps are based on the residential address of the mother and not the location of the birth. Rates are age standardised to allow comparison between populations with different age structures. Data quality issues – for example, the recognition of Aboriginal and Torres Strait Islander status in datasets – could influence the variation seen.

What do the data show?

Magnitude of variation

Over the three-year period 2012–2014, 18,463 women of all ages who gave birth vaginally had a third- or fourth-degree perineal tear, representing an average rate of 27 per 1,000 vaginal births (the Australian rate).

The number of women who had a third- or fourth-degree perineal tear across 301[†] local areas (Statistical Area 3 – SA3) ranged from 6 to 71 per 1,000 vaginal births. The rate was **11.8 times as high** in the area with the highest rate compared to the area with the lowest rate. The number of women who had a third- or fourth-degree perineal tear varied across states and territories, from 22 per 1,000 vaginal births in Western Australia to 45 in the Australian Capital Territory (Figures 3.32–3.35).

After the highest and lowest 10% of results were excluded and 245 SA3s remained, the number of women who had a third- or fourth-degree perineal tear per 1,000 vaginal births was 2.9 times as high in the area with the highest rate compared to the area with the lowest rate.

Analysis by remoteness and socioeconomic status

Rates of third- and fourth-degree perineal tear tended to be higher in major cities and remote areas than in inner and outer regional areas. There was a trend towards a decreasing rate of perineal tears with socioeconomic disadvantage in major cities. However, there was no clear pattern according to socioeconomic disadvantage in other categories of remoteness (Figure 3.36).

[†] There are 333 SA3s. For this item, data were suppressed for 32 SA3s due to a small number of third- and fourth-degree perineal tears and/or women living in an area who gave birth vaginally. Some of the published SA3 rates were considered more volatile than others. These rates are excluded from the calculation of the difference between the highest and lowest SA3 rates in Australia. For further detail about the methods used, please refer to the Technical Supplement.

Third- and fourth-degree perineal tears

Analysis by Aboriginal and Torres Strait Islander status

The rate for Aboriginal and Torres Strait Islander women (16 per 1,000 vaginal births) was 41% lower than the rate for non-Indigenous women (27 per 1,000 vaginal births) (Figure 3.30).

Figure 3.30: Number of third- and fourth-degree perineal tears per 1,000 vaginal births, age standardised, by state and territory and Indigenous status, 2012–2014

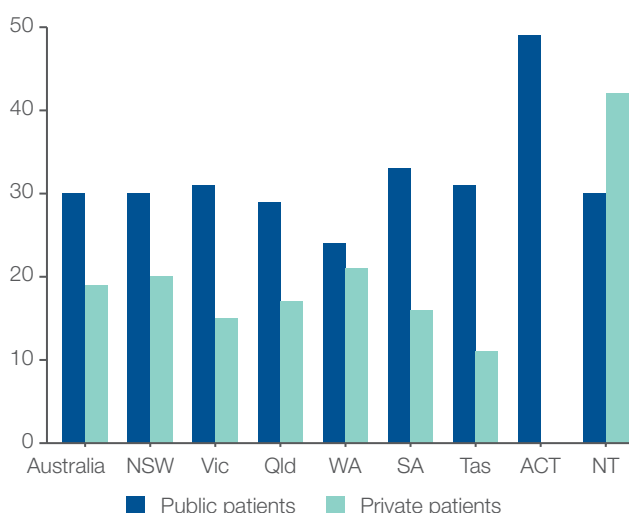


The data for Figure 3.30 are available at www.safetyandquality.gov.au/atlas.

Analysis by patient funding status

Overall, the rate of third- or fourth-degree perineal tear for privately funded patients (19 per 1,000 vaginal births) was 37% lower than for publicly funded patients (30 per 1,000 vaginal births). This differential varied by state and territory, and was greatest in Tasmania. The Northern Territory was an exception to this pattern, with a higher rate for privately funded patients (42 per 1,000 vaginal births) than for publicly funded patients (30 per 1,000 vaginal births) (Figure 3.31).

Figure 3.31: Number of third- and fourth-degree perineal tears per 1,000 vaginal births, age standardised, by state and territory and patient funding status, 2012–2014



The data for Figure 3.31 are available at www.safetyandquality.gov.au/atlas.

Notes:

Rates are age standardised to the Australian female population aged 15–44 years in 2001.

Rates are based on the number of third- and fourth-degree perineal tears (numerator) and number of women living in the geographic area who gave birth vaginally (denominator).

Analysis is based on the woman's area of usual residence, not the place of birth.

Deliveries involving public patients do not incur a charge to the patient or to a third-party payer – for example, a private health insurance fund.

Deliveries involving private patients do incur a charge to the patient and/or a third-party payer.

Data for ACT (Aboriginal and Torres Strait Islander Australians) have been suppressed.

Data for ACT (private patients) have been suppressed.

Data by Indigenous status should be interpreted with caution as hospitalisations for Aboriginal and Torres Strait Islander patients are under-enumerated and there is variation in the under-enumeration among states and territories.

For further detail about the methods used, please refer to the Technical Supplement.

Sources: AIHW analysis of National Perinatal Data Collection 2012–2014.

Interpretation

Potential reasons for the variation include differences in:

- Maternal risk factors, such as gestational diabetes and obesity
- Clinician adherence to policies and guidelines on perineal care and obstetric practice
- Clinician skills and competency levels in instrument-assisted births
- Baby risk factors, such as weight and head circumference
- The proportion of mothers of Asian ethnicity
- The parity status of mothers (number of previous births)
- Obstetric risk factors, such as prolonged second stage of labour, baby's position in the birth canal and mother's position during birth
- The rate and type of instrument-assisted births (vacuum extraction or forceps)
- The rate and type of episiotomy
- Reporting and coding practices across states and territories
- Health service policies and guidelines on perineal care and clinical practice, including the recognition and detection of perineal tears.

The reduced likelihood of third- and fourth-degree perineal tears for Aboriginal and Torres Strait Islander women compared with other Australian women may be partly explained by higher rates of preterm babies, low birth-weight babies and babies who are small for gestational age (each at least 1.5 times as high for Aboriginal and Torres Strait Islander women as for non-Indigenous women).³ Aboriginal and Torres Strait Islander women are also less likely to have an instrument-assisted vaginal birth than non-Indigenous women (6% versus 12%).³ These factors may outweigh some potential risk factors for perineal tear among Aboriginal and Torres Strait Islander women, such as higher rates of obesity and gestational diabetes than non-Indigenous women.³

The reason for lower rates of severe perineal tears in privately funded ('private') patients compared with publicly funded ('public') patients is unclear. Differences in detection and reporting between public and private hospitals may contribute. As well, an Australian study of more than 700,000 singleton births found that women in private hospitals had lower rates of third- and fourth-degree tears than those in public hospitals, regardless of maternal age, and the proportion of first births and vaginal births.²² Private patients may have fewer risk factors for perineal tear than public patients. For example, more elective caesarean sections in the private health sector may reduce the proportion of women at risk of perineal tear giving birth vaginally. Differences in models of care, such as midwifery-led compared with obstetric-led care, may also influence perineal tear rates; these include differences in detection and reporting. Differences in the use and indications for instruments and episiotomy, as well as in rates of emergency caesarean section, may also contribute.

The lower rate of third- and fourth-degree perineal tear in regional areas compared with major cities may reflect less systematic detection and reporting in smaller hospitals, differences in models of care for low-risk births in regional areas and the lower proportion of women of Asian ethnicity living in regional areas.

Addressing variation

Although severe tears cannot be prevented in all cases, a number of clinical practices are associated with a reduced risk.² Initiatives that combine these practices with education and training can be effective in reducing incidence.²³⁻²⁵

Supportive care

Warm compresses on the perineum in the second stage of labour approximately halve the risk of third- and fourth-degree perineal tears.²⁶ There is also some evidence to suggest that perineal massage during this stage may reduce the risk of third-degree tears.²⁶

Third- and fourth-degree perineal tears

Antenatal perineal massage undertaken by the woman or her partner from 35 weeks (once or twice a week) reduces the risk of episiotomies for first vaginal births.²⁷ Although this practice does not affect rates of third- or fourth-degree perineal tears, it reduces the incidence of perineal trauma that requires stitches.²⁷

Supporting a slow and gentle birth of the baby's head and shoulders during the second stage of labour is widely regarded as important for minimising the risk of third- and fourth-degree perineal tears.^{23,25} Ways of doing this include maintaining good communication with the woman throughout the second stage of labour, such as continuous support from the same midwife²⁸, and having good visualisation of the perineum during the last minutes of labour.²³ There is conflicting evidence for other measures, such as manually pressing on the baby's head on crowning, and for the level of encouragement or coaching that women should be given to push.⁴ However, recent international programs that have successfully lowered rates of anal sphincter tears have described 'hands on' techniques (guarding the perineum and flexing the baby's head) and verbal encouragement to slow pushing at crowning.^{2,23,26}

Birth position may influence the risk of tears involving the anal sphincter.^{10,29} In the United Kingdom, guidelines discourage lying down (supine) or semi-supine positions during the second stage of labour and encourage women to adopt any other position that they are comfortable with.⁴ Lithotomy (lying on the back with the trunk slightly raised and the legs in stirrups) has been associated with the highest rates of obstetric anal sphincter injury^{10,29}, while a standing position may be protective.²⁹ Further, keeping mobile and staying upright during the first stage of labour reduces the duration of the second stage of labour, and the risk of caesarean section and epidural analgesia.³⁰

Use of episiotomy and instruments

Routine use of episiotomy for unassisted vaginal births (that is, births without use of instruments) does not protect against third- or fourth-degree perineal tears.^{4,31} United Kingdom guidelines recommend episiotomy if there is a clinical need, such as an instrumental birth or suspected foetal compromise.^{2,4} If instruments are used, a mediolateral episiotomy (a cut that turns away from the anal sphincter at an angle of 60 degrees) is recommended.^{2,15} Midline episiotomy (a cut towards the anus) in an instrumental vaginal birth appears to increase the risk of injury to the anal sphincter and should be avoided.^{15,32}

In Australia, 18% of women who had their first baby as an unassisted vaginal birth had an episiotomy in 2013 compared with 16% in 2004.⁸ Episiotomy is more common in instrument-assisted vaginal births. In these first births, the rate of episiotomy increased from 61% to 70% between 2004 and 2013.⁸

Improvements in training in instrument-assisted vaginal births, including initiatives to ensure skills maintenance, are likely to help reduce the risk of tears due to instruments.^{33,34} Use of mediolateral episiotomy if instruments are used may be protective.^{2,34} Instruments such as vacuum extraction (also known as ventouse) or forceps are used to expedite birth if a baby is showing signs of distress.⁴ Both are associated with higher rates of third- or fourth-degree perineal tear than unassisted births.^{2,6} Vacuum extraction is associated with lower rates than forceps, but is less effective than forceps in achieving a vaginal birth.³⁵

In Australia, 25% of women aged 20–34 years who gave birth for the first time to a singleton, full-term baby with head at the cervix had an instrument-assisted birth in 2013.⁸ This proportion has increased by 2.5% since 2004.⁸

Risk factor awareness

Clinician awareness of risk factors for third- and fourth-degree tear (as described on page 222) is important. Although risk factors cannot reliably predict an anal sphincter injury², awareness of risks can influence management.³⁶

Detection and management

Since all women giving birth vaginally are at risk of sustaining a third- or fourth-degree perineal tear, guidelines recommend systematic examination of the perineum after birth.² If genital trauma is identified, a closer rectal examination should be done, with the mother's consent, to ensure accurate diagnosis and selection of treatment appropriate for the severity of the tear.² These steps will also support the consistent reporting of perineal tears. Only clinicians with expertise and skills in repair of third- and fourth-degree tears should undertake these repairs, and repairs should be done according to latest guidelines.²

Examples of effective initiatives

Quality improvement initiatives that focus on three to five key clinical practices, and include a comprehensive education and training component have been effective in reducing rates of severe perineal tears.²³⁻²⁵

A United Kingdom initiative based on techniques to slow down the second stage of labour reported a significant decrease in third- and fourth-degree tears after the intervention (4.7% versus 2.2%; $n = 3,902$ vaginal births).²⁴ The intervention was based on three principles:

- Avoiding the semi-recumbent position
- Verbal encouragement for the mother to slow down pushing at crowning of the head
- Slowing down delivery of the head with one hand.

Case study: Quality improvement project on detection and management of third- and fourth-degree perineal tears

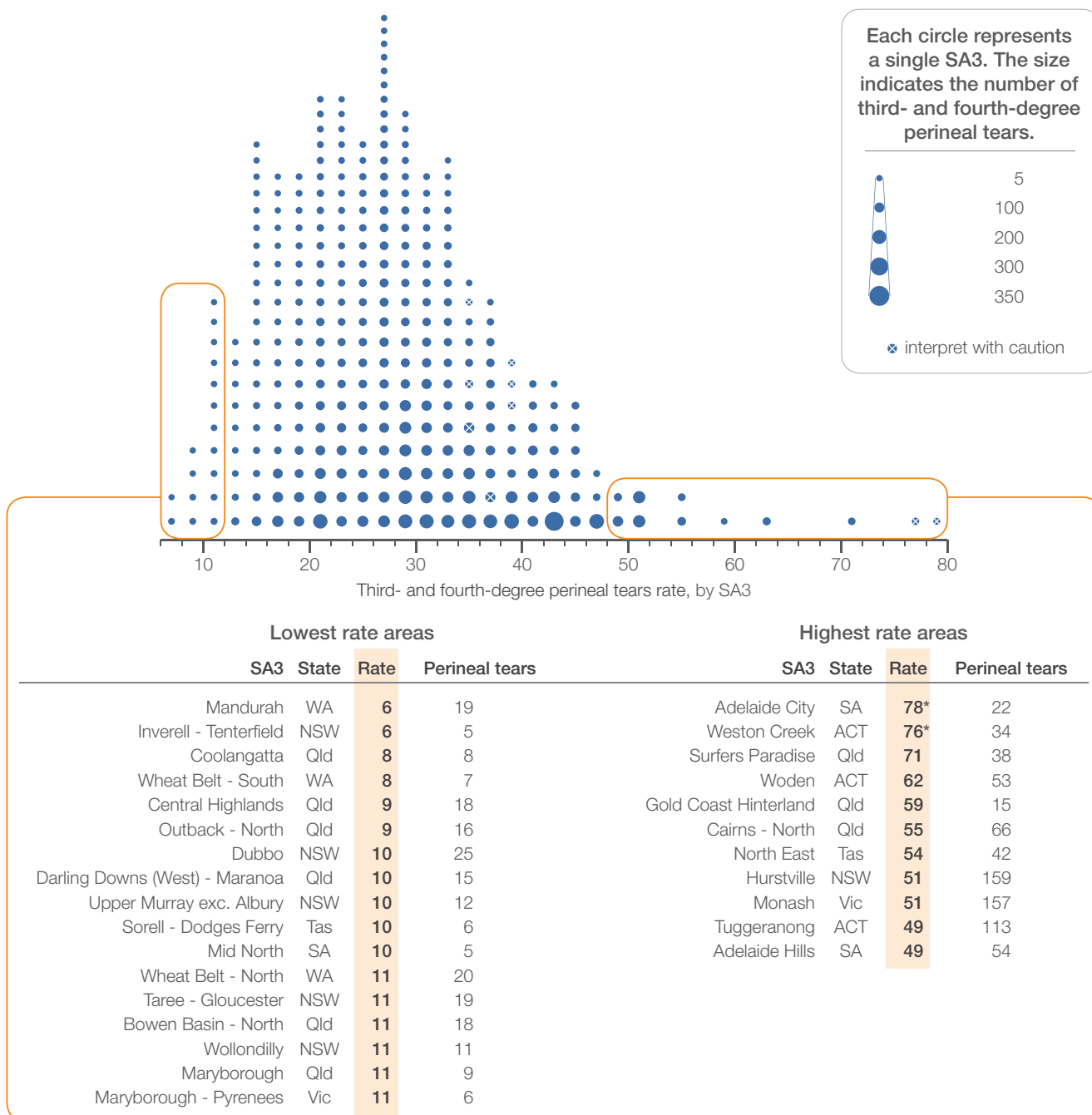
In 2016, the Canberra Hospital and Health Services undertook a quality improvement project to address higher than expected numbers of third- and fourth-degree perineal tears in the Australian Capital Territory in 2015. A combination of review of clinical practices, and staff and patient education was associated with a reduction in the rate (average of 3.0% in 2016 compared with 5.2% in 2015).

The plan of action was multifaceted and included:

- Development of a reflective practice tool for maternity staff to reflect on factors that may have contributed to cases of severe perineal trauma
- Revision of an information brochure for women on antenatal perineal massage
- Development of a process to support application of warm compresses to the perineum in the second stage of labour
- Multidisciplinary workshops for midwifery, nursing and medical staff, covering prevention and management of third- and fourth-degree perineal tears, antenatal massage, warm compresses in the second stage, birth positions and instrument-assisted births.

Third- and fourth-degree perineal tears

Figure 3.32: Number of third- and fourth-degree perineal tears per 1,000 vaginal births, age standardised, by Statistical Area Level 3 (SA3), 2012–2014



Notes:

Rates are age standardised to the Australian female population aged 15–44 years in 2001.

Rates are based on the number of third- and fourth-degree perineal tears (numerator) and number of women living in the geographic area who gave birth vaginally (denominator).

Analysis is based on the woman's area of usual residence, not the place of birth.

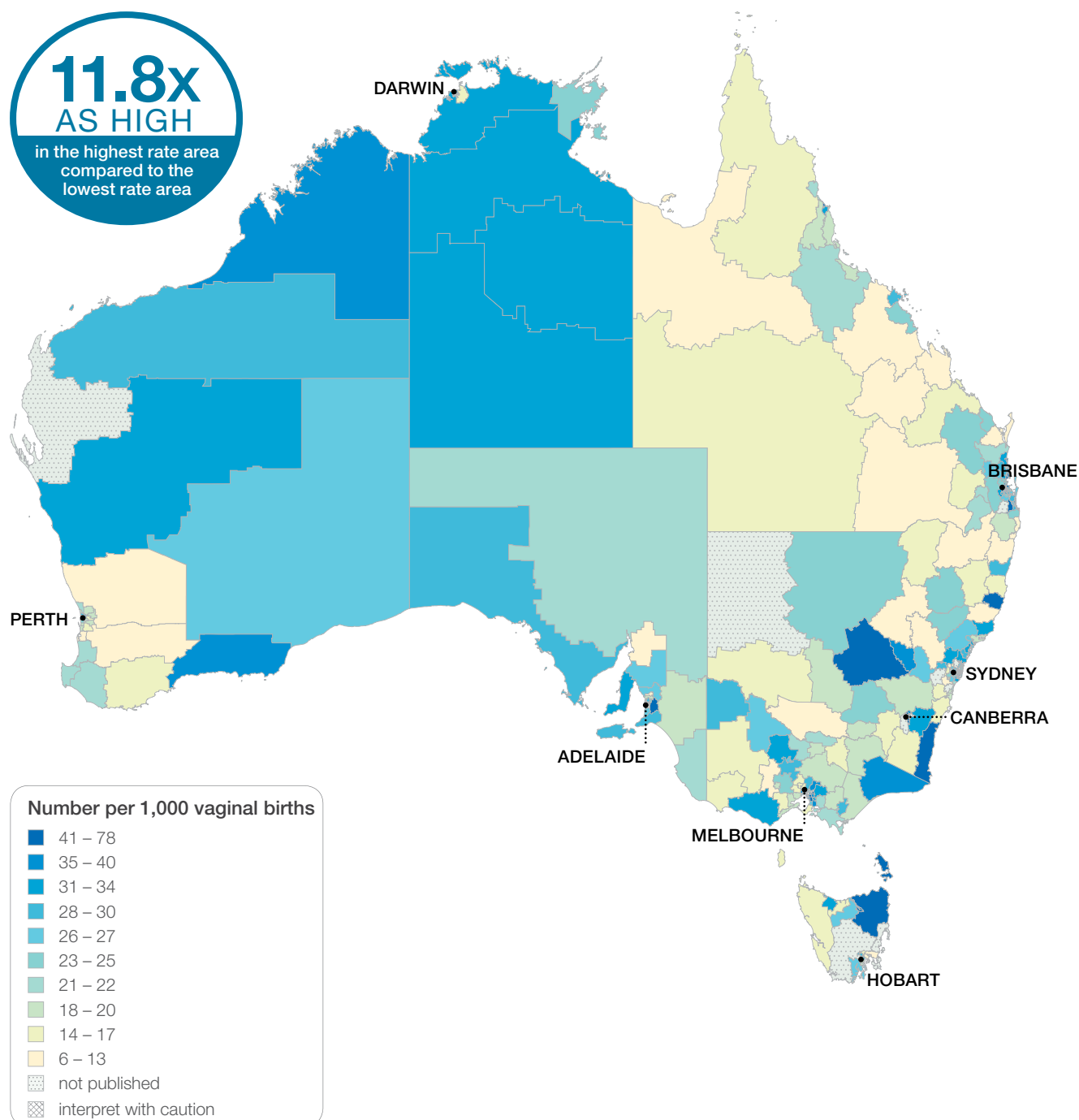
Crosses and asterisks indicate rates that are considered more volatile than other published rates and should be interpreted with caution. These rates are excluded from the calculation of the difference between the highest and lowest SA3 rates in Australia.

For further detail about the methods used, please refer to the Technical Supplement.

Sources: AIHW analysis of National Perinatal Data Collection 2012–2014.

Third- and fourth-degree perineal tears

Figure 3.33: Number of third- and fourth-degree perineal tears per 1,000 vaginal births, age standardised, by Statistical Area Level 3 (SA3), 2012–2014: Australia map



Notes:

Rates are age standardised to the Australian female population aged 15–44 years in 2001.

Rates are based on the number of third- and fourth-degree perineal tears (numerator) and number of women living in the geographic area who gave birth vaginally (denominator).

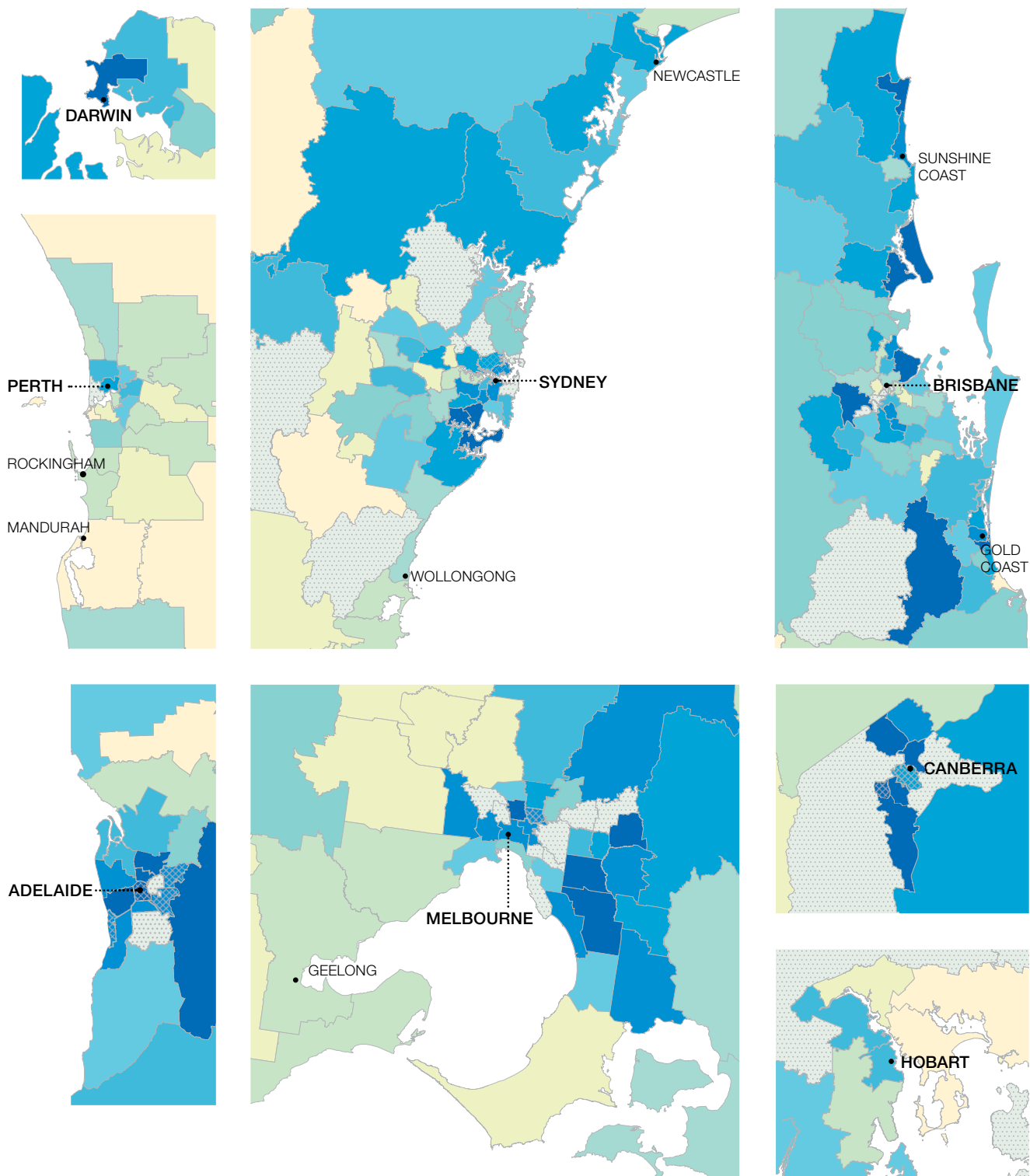
Analysis is based on the woman's area of usual residence, not the place of birth.

Hatching indicates a rate that is considered more volatile than other published rates and should be interpreted with caution.

For further detail about the methods used, please refer to the Technical Supplement.

Sources: AIHW analysis of National Perinatal Data Collection 2012–2014.

Figure 3.34: Number of third- and fourth-degree perineal tears per 1,000 vaginal births, age standardised, by Statistical Area Level 3 (SA3), 2012–2014: capital city area maps



Notes:

Rates are age standardised to the Australian female population aged 15–44 years in 2001.

Rates are based on the number of third- and fourth-degree perineal tears (numerator) and number of women living in the geographic area who gave birth vaginally (denominator).

Analysis is based on the woman's area of usual residence, not the place of birth.

Hatching indicates a rate that is considered more volatile than other published rates and should be interpreted with caution.

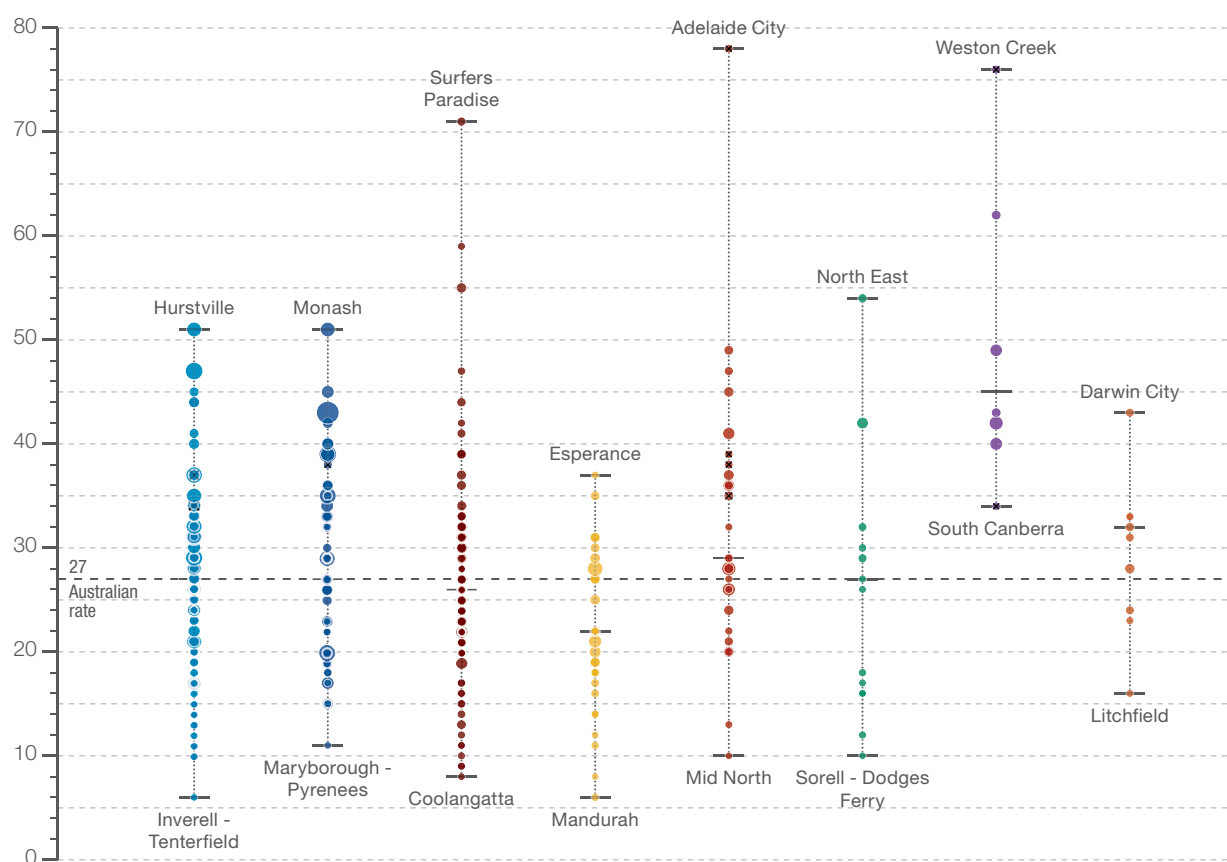
For further detail about the methods used, please refer to the Technical Supplement.

Sources: AIHW analysis of National Perinatal Data Collection 2012–2014.

Third- and fourth-degree perineal tears

Figure 3.35: Number of third- and fourth-degree perineal tears per 1,000 vaginal births, age standardised, by Statistical Area Level 3 (SA3), state and territory, 2012–2014

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT
Highest rate	51	51	71	37	78*	54	76*	43
State/territory	27	27	26	22	29	27	45	32
Lowest rate	6	11	8	6	10	10	34*	16
Perineal tears	5,978	4,657	3,567	1,669	1,353	344	544	284



Each circle represents a single SA3. The size indicates the number of third- and fourth-degree perineal tears.

✱ interpret with caution



Notes:

Rates are age standardised to the Australian female population aged 15–44 years in 2001.

Rates are based on the number of third- and fourth-degree perineal tears (numerator) and number of women living in the geographic area who gave birth vaginally (denominator).

Analysis is based on the woman's area of usual residence, not the place of birth.

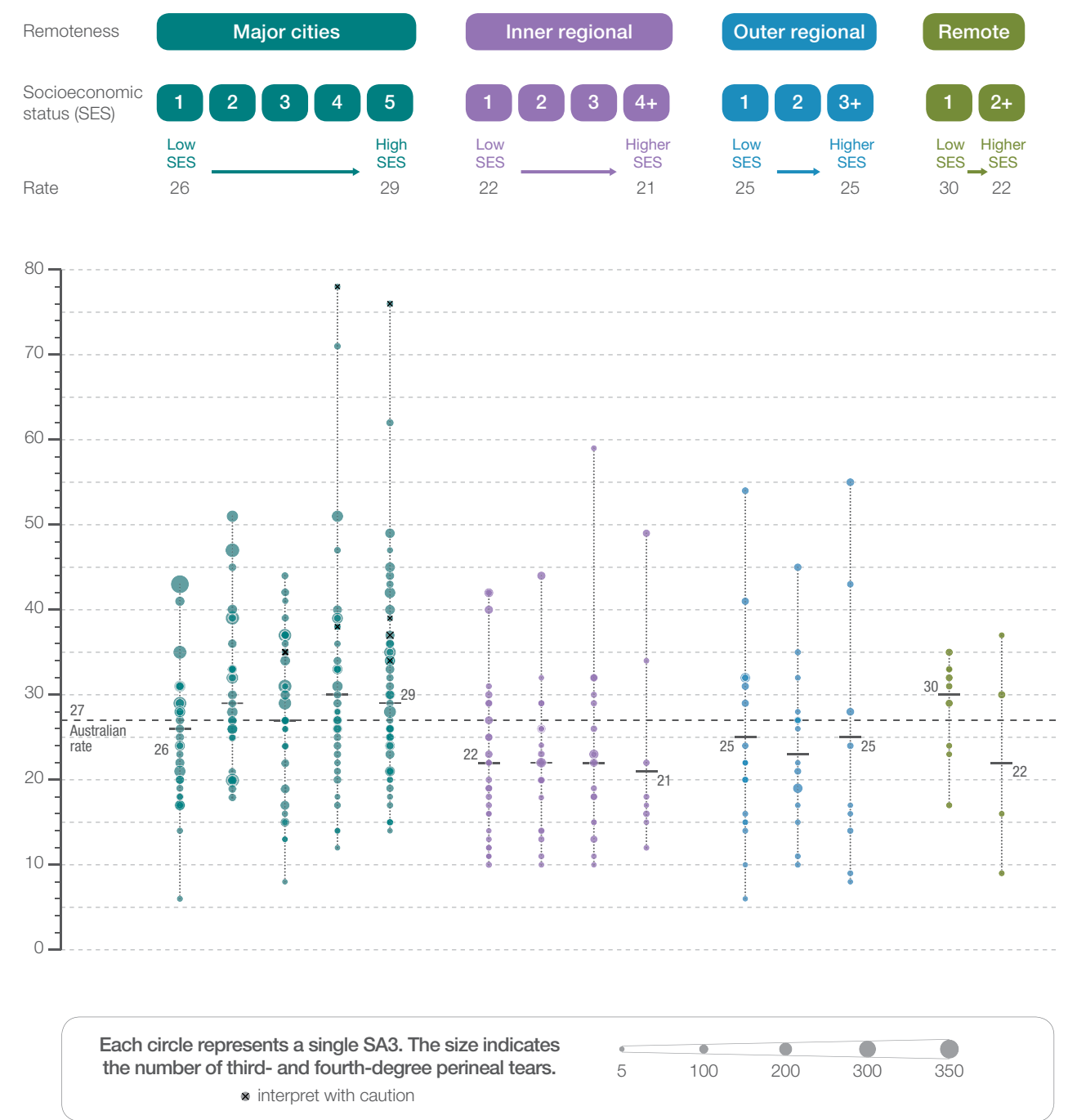
Refer to the case study (page 227), Canberra Hospital and Health Services quality improvement project, for 2015–2016 ACT rates.

Crosses and asterisks indicate rates that are considered more volatile than other published rates and should be interpreted with caution. These rates are excluded from the calculation of the difference between the highest and lowest SA3 rates in Australia.

For further detail about the methods used, please refer to the Technical Supplement.

Sources: AIHW analysis of National Perinatal Data Collection 2012–2014.

Figure 3.36: Number of third- and fourth-degree perineal tears per 1,000 vaginal births, age standardised, by Statistical Area Level 3 (SA3), remoteness and socioeconomic status, 2012–2014



Notes:

Rates are age standardised to the Australian female population aged 15–44 years in 2001.

Rates are based on the number of third- and fourth-degree perineal tears (numerator) and number of women living in the geographic area who gave birth vaginally (denominator).

Analysis is based on the woman's area of usual residence, not the place of birth.

Crosses indicate rates that are considered more volatile than other published rates and should be interpreted with caution.

For further detail about the methods used, please refer to the Technical Supplement.

Sources: AIHW analysis of National Perinatal Data Collection 2012–2014.

Third- and fourth-degree perineal tears

Resources

- Royal College of Obstetricians and Gynaecologists. The management of third-and fourth-degree perineal tears. Green-top guideline No. 29. London: RCOG; 2015. Available from: www.rcog.org.uk/globalassets/documents/guidelines/gtg-29.pdf
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Australian initiatives

The information in this chapter will complement work already under way to address the rate of third- and fourth-degree perineal tears in Australia. At a national level, this work includes:

- A Breakthrough Collaborative on perineal trauma, led by Women's Healthcare Australasia, based on methods developed by the Institute for Healthcare Improvement in the United States – a Breakthrough Collaborative is a resource-intensive tool that focuses on spread and adaptation of existing knowledge about best-practice care to multiple settings. www.women.wcha.asn.au/wha-collaborative-improvement-perineal-trauma
- National Core Maternity Indicators of third- and fourth-degree perineal tears for all vaginal births, and third- and fourth-degree perineal tears for all vaginal first births; the full list of indicators and results from 2010 to 2013 are available at www.aihw.gov.au/publication-detail/?id=60129555634.

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